

WHAT IS CLAIMED IS:

1. An image display device, comprising:

a plurality of pixel elements arranged in rows and columns;

a plurality of gate lines, arranged corresponding to the rows of pixel elements and driven to a selected state in a prescribed sequence, each for transmitting, when
5 selected, a select signal for driving pixel elements of a corresponding row to a selected state;

non-select transition detect circuitry arranged for said plurality of gate lines for detecting transition of a gate line in a selected state to a non-selected state; and

internal circuitry for performing an operation related to next image data writing
10 in response to said non-select transition detect circuitry detecting the transition to the non-selected state.

2. The image display device according to claim 1, wherein

said internal circuitry includes a gate line select circuit for driving the select signal for a next gate line in said prescribed sequence to an active state in response to a signal indicating detection of the transition to the non-selected state from said non-select
5 transition detect circuitry.

3. The image display device according to claim 1, wherein

said internal circuitry includes;

a shift circuit for generating a basic select signal driving said plurality of gate lines to a selected state in said prescribed sequence in synchronization with a clock
5 signal,

a plurality of gate line activation prohibiting circuits, arranged corresponding to the respective gate lines, each being set to a first state in accordance with activation of a select signal for a corresponding gate line and set to a second state in accordance with

activation of a non-selection transition detecting signal from said non-select transition
10 detect circuitry, and

gate line drive circuits, arranged corresponding to the gate lines, for driving the
select signal to a corresponding gate line in accordance with a corresponding basic select
signal and the second state of the gate line activation prohibiting circuit of a preceding
stage in said prescribed sequence.

4. The image display device according to claim 3, wherein
said internal circuitry further includes a plurality of initialization transistors,
arranged corresponding to the respective gate lines, each for setting said non-selection
transition detecting signal to an inactive state in response to a corresponding gate line
5 being driven to the selected state.

5. The image display device according to claim 1, wherein
said non-select transition detect circuitry includes a plurality of deactivation
detect circuits arranged corresponding to the respective gate lines,
the inactivation detect circuits each include;
5 a capacitive element having one electrode coupled to a corresponding gate line,
a precharge element for precharging other electrode of said capacitive element
to a prescribed potential, and

a detection transistor for activating a non-select transition detecting signal
indicating the transition in response to at least a potential of the other electrode of said
10 capacitive element.

6. The image display device according to claim 5, wherein
the inactivation detect circuits each further includes a control transistor
enabling activation of said non-select transition detect signal by said detect transistor in
response to an inactive state of an adjacent gate line in said prescribed sequence.

7. The image display device according to claim 1, wherein
said plurality of pixel elements each include a display pixel element performing
a displaying operation in accordance with an applied image signal.

8. The image display device according to claim 1, wherein
said plurality of pixel elements includes a plurality of normal display pixel
elements displaying an image and a dummy pixel element arranged in alignment with the
normal display pixel elements,

5 said plurality of gate lines include a normal gate line connecting to the normal
display pixel elements, and a plurality of dummy gate lines connecting to the dummy
pixel element, and

 said non-select transition detect circuitry detects transition to the non-selected
state according to a potential of the dummy gate lines to activate a non-select transition
10 detect signal indicating the transition.

9. The image display device according to claim 8, wherein
said internal circuitry drives a designated normal gate line to the selected state
in accordance with activation of said non-select transition detect signal.

10. The image display device according to claim 8, further comprising:
dummy select circuitry for generating a dummy basic gate signal sequentially
selecting said plurality of dummy gate lines in accordance with a clock signal;

5 a plurality of activation prohibiting circuits, arranged corresponding to the
respective dummy gate lines, each being set to a first state in accordance with activation
of a select signal for a corresponding dummy gate line and set to a second state in
accordance with activation of said non-select transition detect signal; and

 a plurality of dummy gate drive circuits, arranged corresponding to the
respective dummy gate lines, each for driving a corresponding dummy gate line to the

10 selected state in accordance with the second state of an activation prohibiting circuit of a preceding stage in a dummy gate line selection sequence and a dummy basic select signal for a corresponding dummy gate line.

11. The image display device according to claim 1, wherein
said internal circuitry includes;

a latch circuit for latching and outputting digital pixel data for next image data
in accordance with activation of a non-select transition detecting signal indicating the
5 transition, and

a multiplexer for converting the data outputted from said latch circuit into an
analog signal for outputting the converted analog signal.

12. The image display device according to claim 11, further comprising:

a plurality of data lines arranged corresponding to the respective columns of the
pixel elements; and

data line drive circuitry driving the data lines in accordance with the signal
5 received from said multiplexer.

13. The image display device according to claim 1, wherein

the pixel elements each include a display element having a counter electrode
arranged opposing to a data storage node, and

said internal circuitry includes a voltage generate circuit for alternately selecting
5 first and second voltages to be applied to said counter electrode in response to
activation of said non-select transition detecting signal indicating the transition, a
polarity of the voltage of said counter electrode changing for each activation of said
non-select transition detect signal.